NOTICE TO MEMBERS

No. 2014 – 162

July 29, 2014

REQUEST FOR COMMENTS

AMENDMENTS TO THE OPERATIONS MANUAL AND RISK MANUAL OF THE CANADIAN DERIVATIVES CLEARING CORPORATION TO ADDRESS ADDITIONAL MARGIN FOR SPECIFIC WRONG-WAY RISK

Summary

On July 14, 2014, the Board of Directors of Canadian Derivatives Clearing Corporation (CDCC) approved amendments to the Operations Manual and Risk Manual of CDCC. The purpose of the proposed amendment is to address the specific wrong-way risk identified by CDCC.

Please find enclosed an analysis document as well as the proposed amendments.

Process for Changes to the Rules

CDCC is recognized as a clearing house under section 12 of the *Derivatives Act* (Québec) by the Autorité des marchés financiers (AMF) and is a recognized clearing agency under section 21.2 of the *Securities Act* (Ontario) by the Ontario Securities Commission (OSC).

The Board of Directors of CDCC has the power to approve the adoption or amendment of Rules and Operations Manual of CDCC. Amendments are submitted to the AMF in accordance with the self-certification process and the Ontario Securities Commission in accordance with the process provided in its Recognition Order.

Comments on the proposed amendments must be submitted within 30 days following the date of publication of the present notice. Please submit your comments to:

Mrs. Pauline Ascoli
Assistant Secretary
Canadian Derivatives Clearing Corporation
Tour de la Bourse
P.O. Box 61, 800 Victoria Square
Montréal, Québec H4Z 1A9
E-mail: legal@m-x.ca

A copy of these comments shall also be forwarded to the AMF and to the OSC to:

Mrs. Anne-Marie Beaudoin
Corporate Secretary
Autorité des marchés financiers
Tour de la Bourse, P.O. Box 246
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Fax: 416-595-8940
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For any question or clarification, Clearing Members may contact CDCC's Corporate Operations.

Glenn Goucher
President and Chief Clearing Officer

AMENDMENTS TO THE OPERATIONS MANUAL AND RISK MANUAL OF THE CANADIAN DERIVATIVES CLEARING CORPORATION TO ADDRESS ADDITIONAL MARGIN FOR SPECIFIC WRONG-WAY RISK

CONTENTS

I. SUMMARY

The Wrong-way risk is defined by the International Swaps and Derivatives Association (ISDA) as the risk that occurs when "exposure to counterparty is adversely correlated with the credit quality of that counterparty[1]". In short, it arises when default risk and credit exposure increase together.

For example, a Clearing Member has short put positions on his own company stocks. If this Clearing Member is forced into bankruptcy, his company stocks price will likely decrease significantly, therefore causing a big loss for his Short Put positions and triggering a significant margin call.

II. ANALYSIS

a. Background

Similar to Basel III, ISDA describes the wrong-way risk as the risk that occurs when "exposure to a counterparty is adversely correlated with the credit quality of that counterparty[2]". In short, it arises when default risk and credit exposure increase together.

Usually, the creditworthiness of a counterparty and the exposure of a transaction are measured and modelled independently. However, in situations where wrong-way risk occurs, this approach might simply be not sufficient and ignores an important source of potential loss.

After the 2008 financial crisis, the ability to manage this risk is seen as very critical and ignoring it can significantly misstate exposures. In addition to the existing accounting and capital rules, wrong-way risk has also received regulatory focus.

There are two types of wrong-way risk: general or systematic wrong-way risk and specific (idiosyncratic) wrong-way risk. This analysis primarily focuses on Specific Wrong-Way Risk. CDCC does not currently address specific wrong-way risk in its current margin methodology.

b. Description and Analysis of Impacts

CDCC has identified two different situations where the specific wrong-way risk has to be addressed:

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[1] Source : http://www.risk.net/risk-magazine/advertisement/1557468/wrong-risk

[2] Source : http://www.isda.org/c_and_a/pdf/RGresserLetter-Sept701.pdf

1- Put Options: CDCC is not going to use SPAN® anymore to calculate the margin requirements for all the Short Options positions that are subject to the wrong-way risk and will charge the full strike value amount instead.

2- Unsettled Items: Once the Option is Exercised or expired At-The-Money, it produces an unsettled item margin requirement. The latter is basically composed of the intrinsic value of the Option and the PFE on the option's underlying. In order to address the Specific Wrong-Way Risk, the margin requirement will be equal to the full strike value amount.

Example

A Clearing Member has short Put Options positions of 80 contracts on his own company stocks. The Put Options are At-The-Money with the spot price = strike price = 50 dollars. If the Clearing Member is forced into bankruptcy, his company stock price will certainly decrease significantly causing a big loss on its Short Put positions. CDCC will charge the full strike value as margin requirement for those positions.

Margin requirement = number of contracts * contract size * strike price
= 80 * 100 * 50
= 400 000 dollars

c. Proposed Amendments

The proposed amendments are presented in Appendix 1 and 2.

d. Benchmarking

The PFMI principles have clearly stated that Central Counterparties (CCPs) are expected to review on a regular basis their portfolio to identify, monitor and mitigate promptly exposures that may give rise to Specific Wrong-Way Risk.

Our review of best practices regarding the management of such wrong-way risk has revealed that **Eurex Clearing** does not allow counterparties to deposit their own issues (or issues of closely linked entities) as collateral. Moreover, Eurex does not allow its counterparties to use such instruments as collateral for repo or securities lending transactions.

LCH Clearnet has stated that Index derivatives are not subject to wrong-way risk. For equity options issued by clearing members and their affiliates and held in their House and client accounts, LCH evaluates the wrong-way risk at Margin Account level.

For initial margins on Fixed Income products, LCH Clearnet monitors the wrong-way risk for members borrowing against their own sovereign paper. The wrong-way risk charge is calculated as the Basel AIRB (Advanced Internal Ratings Based) capital required to support a loan to the Sovereign via the bond market. Such calculation utilizes the closed-form Vasicek[3] asymptotic risk factor model.

III. DRAFTING PROCESS

Addressing the wrong-way risk is a PFMI requirement (ref. Principle 6 – 3.6.9 Specific Wrong Way risk "A CCP should identify and mitigate any credit exposure that may give rise to specific wrong-way risk. Specific Wrong-Way Risk arises where an exposure to counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating. […] A CCP is expected to review its portfolio regularly in order to identify, monitor and mitigate promptly any exposures that give rise to specific wrong-way risk). Therefore the specific wrong-way risk should be appropriately addressed.

IV. IMPACTS ON TECHNOLOGICAL SYSTEMS

The proposed solution will be implemented in SOLA® Clearing as part of the PFMI remediation strategy. In order to minimize the potential for operational risk, the new solution will be properly tested with a complete user acceptance test (UAT) prior to its implementation in the production system.

V. OBJECTIVES OF THE PROPOSED MODIFICATIONS

The objective of the proposed modifications is to address the Specific Wrong Way Risk in the margin requirement requested by CDCC from its Clearing Members.

VI. PUBLIC INTEREST

In CDCC's opinion, the proposed amendment to CDCC's Operations Manual and Risk Manual are not contrary to the public interest.

VII. MARKET IMPACTS

CDCC has identified three different situations where the Specific Wrong-Way Risk exists but has decided to consider and address two of them as the other one which is related to long call options positions has minimal or no impact on its business.

The margin impact for the Short Put Options on the six largest Clearing Members on Options contract is ranging from an increase of 3 to 56%. Four members are having an increase in their margin requirement of less than 10% and the fifth one is having an increase of 13%. In dollar amount, this increase is ranging from C$2.6 M to C$39 M.

[3] Vasicek, O. (2002) Loan Portfolio Value RISK, Dec 2002, 160-162

VIII. PROCESS

The proposed amendment is submitted for approval by the CDCC Board. Once the approval has been obtained, the proposed amendment, including this analysis, will be transmitted to the *Autorité des marchés financiers* in accordance with the self-certification process and the Ontario Securities Commission in accordance with the "Rule Change Requiring Approval in Ontario" process. The proposed amendment and analysis will also be submitted for approval to the Bank of Canada in accordance with the Oversight Regulatory Agreement.

IX. EFFECTIVE DATE

The proposed changes to address additional margin for wrong way risk will be implemented in December 2014. This is subject to the regulatory approval.

X. ATTACHED DOCUMENTS

Appendix 1: Amended Operations Manual
Appendix 2: Amended Risk Manual

PREAMBLE AND DEFINITIONS

CANADIAN DERIVATIVES CLEARING CORPORATION
CORPORATION CANADIENNE DE COMPENSATION DE PRODUITS DÉRIVÉS

OPERATIONS MANUAL

VERSION OF ~~JUNE 13~~, 2014

DEFINITIONS

"Acceptable Collateral" – Margin Deposits by Clearing Members in a form that is acceptable to CDCC as set forth in Section A-709 of the Rules.

"Assignee" – a Clearing Member that holds a Short Position in an Options contract or a Long Position in a Futures contract and which is assigned by CDCC the obligation to make delivery of the Underlying Interest, resulting from the submission of an Exercise Notice or a Tender Notice by another Clearing Member (referred to as Exerciser or Tenderer) holding a Long Position in the relevant Series of Options or a Short Position in the relevant Series of Futures.

"Automatic Exercise" – a process by which the CDCC Clearing Application will exercise In-the-Money Options at a pre-determined threshold.

"CDCC Clearing Application" – CDCS and all the processes associated with it, as may be supplemented or otherwise changed from time to time.

"Closing Transaction" – any Transaction that is either a Closing Buy Transaction, a Closing Purchase Transaction, a Closing Sell Transaction or a Closing Writing Transaction, as such terms are defined in the Rules, and in all cases that reduces or eliminates the Clearing Member's Open Interest.

"*Converge*" – marketing brand of the portion of the CDCC Clearing Application that captures and processes OTCI Transactions, including Fixed Income Transactions.

"Difference Fund" – any and all deposits from a Clearing Member to CDCC as additional Margin, in accordance with Sections A-702, A-705, A-710, B-412, C-303, C-517 or D-307 of the Rules, or otherwise as set forth in Section 8-2 hereof.

"Exerciser" – a Clearing Member that holds a Long Position in a particular Series of Options and submits an Exercise Notice to CDCC.

"Expiry Friday" – the third Friday of the month, unless that Friday is not a Business Day, then the Business Day preceding the third Friday of the month.

"FIFO Period" – the quarterly delivery period for Futures contracts on Government of Canada bonds, in accordance with Contract Specifications of the relevant Exchange.

"Forward Repurchase Transaction" – a Repurchase Transaction with respect of which the Open Leg has not settled yet at the time of the relevant report.

"FTP Downloads" – Clearing Members' access to files and reports on an FTP server that is part of the CDCC Clearing Application.

"Inquiry Screen" – Graphical User Interface (GUI) view of the CDCC Clearing Application.

"Large Value Transfer System" or "LVTS" – an electronic wire system introduced by the Canadian Payments Association in February 1999 to facilitate the transfer of irrevocable payments in Canadian dollars across the country.

"Fixed Income Mark-to-Market Amounts" – any and all Net MTM Repo Rate Payments, Net OCF MTM Payments and Net MTM Reversal Requirements, as such terms are defined in Section D-601 of the Rules.

"Mini Futures Contract" – a Future that has the same Underlying Interest as a Standard Futures Contract but having a Unit of Trading that is a ratio of the Standard Futures Contract in accordance with applicable Contract Specifications.

"Net Settlement Position" – All the future Net Delivery Requirements and Net Payment Against Delivery Requirements of a Clearing Member, as reported by CDCC on a daily basis, taking into account all Fixed Income Transactions that have settled during the day and all new Fixed Income Transactions that have been novated to CDCC.

"Open Position File" – database of the CDCC Clearing Application which compiles the Open Positions of all Clearing Members. Each Clearing Member can access the information pertaining to his accounts only, not to other Clearing Members' accounts.

"Opening Transaction" – any Transaction that is either an Opening Buy Transaction, an Opening Purchase Transaction, an Opening Sell Transaction or an Opening Writing Transaction, and in all cases that create or increase the Clearing Member's Open Interest.

"Operational Notices" – formal notifications to the Clearing Members, representing items that are not published on CDCC's website. These documents are available on the Secured Website.

"OTCI Equity Options" – over the counter options on an equity, bearing characteristics that differ from Exchange traded Options and are cleared by CDCC through *Converge.*

"Position Transfer" – this is the CDCC Clearing Application function to move a position from one Clearing Member to another.

"Production Schedule" – sum of time lines that are followed by CDCC, as set forth in Section 2 of this Operations Manual.

"Request for Standard vs Mini Offset" – the request by a Clearing Member, in such form as prescribed by CDCC, to offset one (1) or more Long Position(s) on a Standard Futures Contract against the equivalent number of Short Positions on the corresponding Mini Futures Contract (totalling the same quantity of the Underlying Interest in accordance with the ratio prescribed in the Contract Specifications of the Mini Futures Contract), having the same Delivery Month and booked in the same Clearing Member's account, or the other way around.

"Running Repurchase Transaction" – a Repurchase Transaction with respect of which the Open Leg has already settled at the time of the relevant report.

"Secured Website" – Clearing Members only secured web site that requires a sign on and password, where CDCC publishes Operational Notices as well as documents that are meant only for the Clearing Members.

"Specific Deposit" – a Put Escrow Receipt, a Call Underlying Interest Deposit or a Futures Underlying Interest Deposit which are accepted by CDCC as Underlying Interest Equivalent to cover a specific Short Position.

"Specific Wrong-Way Risk" – a Specific Wrong-Way Risk arises where an exposure to a counterparty is highly likely to increase when the credit worthiness of that counterparty is deteriorating.

"Standard Futures Contract" – a Future in relation to which a Mini Futures Contract exists.

PREAMBLE AND DEFINITIONS

"Tenderer" – a Clearing Member that holds a Short Position in a particular Series of Futures and submits a Tender Notice, or is deemed to do so in accordance with the Rules, to CDCC.

"**Unsettled Items**" – any delivery of the Underlying Interest of an Option that has not been settled at the Central Securities Depository.

"**Weekly Options**" **–** Options that expire on any Friday, other than Expiry Friday. Only monthly Options expire on Expiry Friday.

CLEARING MEMBER SECURITY OFFICER

DIFFERENCE FUND

The Difference Fund is Margin Deposits held by CDCC as discretionary margin, such as: (1) Unsettled Items Margin, (2) Daily Capital Margin Monitoring, (3) Advance calls for settlement of losses, (4) OTCI Additional Margin,~~ and~~ (5) Intra-Day Margin, and (6) Specific Wrong-Way Risk for Unsettled Item. CDCC accepts Deposits to the Difference Fund in the forms of Margin set forth in Section A-709 of the Rules, in the proportions specified therein.

(1) Unsettled Items Margin

Security Funds, as such term is defined in Sections B-401, C-501 and D-301 of the Rules, corresponding to an amount equal to not less than 105% of the market value of the Underlying Interest which a Clearing Member has failed to timely deliver, in accordance with Sections B-412, C-517 and D-307 respectively of the Rules.

(2) Daily Capital Margin Monitoring

The amount by which the Margin requirements of a Clearing Member exceeds its capital, in accordance with Section A-710 of the Rules.

(3) Advance Calls for Settlement of Losses

An amount that CDCC estimates will be needed to meet losses resulting from particular marked conditions or price fluctuations, in accordance with Section C-303 of the Rules.

(4) OTCI Additional Margin

An amount representing the premium value collected from the Buyer before an OTCI Option is confirmed, which amount shall be available for withdrawal the morning after the Transaction has been processed, in accordance with Section D-107 of the Rules.

(5) Intra-Day Margin

Additional margin may be requested from a Clearing Member, at CDCC's sole discretion at any time and from time to time as it deems appropriate, due to some adverse change in the market of a given Underlying Interest or in the financial position of the Clearing Member, in accordance with Section A-705 of the Rules.

(6) Specific Wrong-Way Risk for an Unsettled Item

Additional margin may be requested from a Clearing Member, at CDCC's sole discretion, at the expiration of an Option position subject to Specific Wrong-Way Risk. For Specific Wrong-Way Risk for Unsettled Items, CDCC may charge the full strike value amount of the Option position.

Deposits, Withdrawals, Substitutions

Deposits, withdrawals and substitutions of assets (other than cash) in the Difference Fund are made in the same manner and subject to the same deadlines as Margin Fund deposits, withdrawals and substitutions of assets (other than cash), in accordance with Section 2 of this Operations Manual.

Note:
Information with respect to the Margin Fund is to be found in the Risk Manual, Schedule A of this Operations Manual.

TMX | CDCC

Risk Manual

OTCI Transactions for which the Underlying Interest is a Security

The Initial Margin calculation process for OTCI Transactions for which the Underlying Interest is a Security is the same as for listed options, except that the Corporation uses a theoretical price calculated using an in-house program, instead of the contractual option price.

Theoretical Price Calculation

The Corporation uses the Barone-Adesi and Whaley (BAW) model to evaluate the Options that have an American style and the Black and Scholes (BS) model to evaluate the Options that have a European style. In order to evaluate the Option price, we need to determine the implied volatility to be used. For this, two different methodologies are used depending whether the Option is an Exchange traded Option.

If the Option contract is an Exchange traded Option, the Corporation uses the Option's data (the entire Option series for one expiry month) available at the Exchange and builds a Smile Volatility Curve using a Cubic Spline function. After building the Smile Curve, the Corporation determines the implied volatility that corresponds exactly to the strike price of the Option to be assessed. If the expiry date of the Option does not correspond to the ones of the listed series, the Corporation builds two Smile Volatility Curves, one using the Option series with an expiry date that is right after the one of the assessed Option and one using the series of Options with an expiry date that is right before the one of the assessed Option to be evaluated.

Then, the volatility that corresponds to the strike price of the Option to be evaluated is determined on each curve. Finally, a linear interpolation is done to determine the volatility that corresponds to the strike and to the expiry date of the Option to be evaluated. However, if the expiry date of the Option to be evaluated is before (after) the first (last) expiry date of the listed Options series, the Corporation uses the volatilities of the Smile Volatility Curve of the first (last) expiry date of the listed Option series.

If the Option is not listed and no data is available for it, the Corporation uses the yearly historical volatility of the Option's Underlying Interest price as a proxy for the implied volatility.

Liquidity Interval

To calculate the Margin Interval for OTCI transactions for which the Underlying Interest is a Security, the Corporation may apply a different number of liquidation days. In addition, for OTCI with Physical Settlement/Delivery, the Corporation calculates an additional Liquidity Interval and adds it to the Margin Interval.

The assumptions under which the Liquidity Interval is calculated are similar to the assumptions the Corporation uses to calculate the Margin Interval, i.e., the confidence interval over 99% is obtained by using 3 standard deviations (based on the normal distribution's assumptions). The Liquidity Interval is calculated based on the historical bid-ask price spread of the Underlying Interest according to the same formula for Margin Interval.

UNSETTLED ITEMS

Options contracts with physical delivery that have been exercised or expired in the money without being settled (i.e. the Underlying Interest is not delivered yet) are considered as Unsettled Items and the Corporation has to manage the settlement risk associated with these products until the whole quantity of the Underlying Interest is completely delivered/settled. For instance, when such Option contract expires in the money, the Underlying Interest is delivered three days after the expiry date consistent with current market settlement conventions. The Corporation has to charge a Margin requirement to cover the Replacement Cost (RC) of the Option contract and its Potential Future Exposure (PFE) as well. The procedure is as follows:

To cover the Replacement Cost of the Option contract, the Corporation requests a Margin requirement equal to the intrinsic value of the Option times the position (quantity of Options). However, when the writer of a put Option has deposited a Put Escrow Receipt to cover the total amount of the strike price in accordance with Section A-708 of the Rules, the Corporation will not require Margin on the relevant put Option. In the same manner, when the writer of a call Option has deposited a Call Underlying Interest Deposit to cover the total quantity of the Underlying Interest deliverable thereunder in accordance with Section A-708 of the Rules, the Corporation will not require Margin on the relevant call Option.

To cover the Potential Future Exposure of the Option contract, the Corporation requests a margin requirement amount to cover any potential Underlying Interest price movement over two days and within three standard deviations (under the normal distribution's assumption).

SPECIFIC WRONG-WAY RISK

The Specific Wrong-Way Risk arises where an exposure to a counterparty is highly likely to increase when the credit worthiness of that counterparty is deteriorating.

CDCC had identified two particular situations where the Specific Wrong-Way Risk exists and it addresses them as follows:

Put Options: When a Clearing Member takes a Short Put Option position on the shares of its own company or affiliates, the full strike value amount is charged as margin requirement.

Unsettled Items: For an Unsettled Item that is related to the Specific Wrong-Way Risk, the full strike value amount is charged as margin requirement. In such case, the margin requirement is collected in the Difference Fund.

INITIAL MARGIN FOR FUTURES CONTRACTS

This section describes how the initial margin is calculated for the Futures contracts, which includes the Index Futures, Interest Rate Futures, Government of Canada

Bonds Futures and Shares Futures.

The first part of the example # 2 of the previous section on Risk Arrays shows how the Scanning Risk is calculated. The Scanning Risk represents the most unfavourable projected liquidation value of the futures position. The calculated Scanning Risk is the Initial Margin for a Futures contract. However, since the Futures contract prices are linear with respect to their Underlying Interest prices, the Active Scenario for a Futures contract is always the one with the positive amount between scenario 5 and scenario 6. In other words, the Initial Margin for a Futures contract is always equal to its Price Scan Range (PSR).

However, when the holder of a short position on a Futures contract has deposited a Futures Underlying Interest Deposit to cover the total quantity of the Underlying Interest deliverable thereunder in accordance with Section A-708 of the Rules, the Corporation will not require Margin on the relevant Futures contract.